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Cochrane Airways Group reviews were prioritized for updating using a pragmatic approach

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Abstract

Objectives: Cochrane Reviews should address the most important questions for guideline writers, clinicians, and the public. It is not possible to keep all reviews up-to-date, so the Cochrane Airways Group (CAG) decided to prioritize updates and new reviews without requesting additional resources. The aim of the objective was to develop pragmatic and transparent prioritization techniques to identify 25 to 35 high-priority updates from a total of 270 CAG Reviews and become more selective over which new reviews we publish.

Study Design and Setting: We used elements from existing prioritization processes, including existing health care uncertainties, expert opinion, and a decision tool. We did not conduct a full face-to-face workshop or an iterative group decision-making process.

Results: We prioritized 30 reviews in need of updating and aimed to update these within 2 years. Within the first 18 months, nine of these have been published.

Conclusion: A pragmatic approach to prioritization can indicate priority reviews without an excessive drain on time and resources. The steps provide us with better control over the reviews in our scope and can be built on in the future.

Keywords: Systematic reviews; Research prioritization; Cochrane Reviews; Priority setting; PPI; Decision making

1. Introduction

Health research should aim to answer questions of interest to the public and health care providers. This is especially true when research is funded by the public. For these reasons, Cochrane Reviews, which are supported by public funding, must seek to answer priority questions. This has been underlined in Cochrane's strategy to 2020 [1]. End users, such as guideline writers, clinicians, and patients, expect reviews to be both up-to-date and answer relevant clinical questions in health care. Because of the challenges for individuals to keep up with the rapidly expanding health care literature at a time when there are 75 trials and 11 systematic reviews published every day [2], it is important that the Cochrane Library contains reviews on the most important topics.

Historically, Cochrane Review topics have been proposed by prospective authors, and decisions about when to update a particular review were also motivated by author teams. This has left the Cochrane Airways Group (CAG) [3] and some other Cochrane Review Groups (CRG), with a collection of systematic reviews, which have evolved over time, rather than a carefully planned and curated collection of reviews—although this is done in some CRGs.

Although it is commonly held that health research priority setting processes help effectively target research, there is no agreement on the best way of conducting such an exercise either generally [4] or within Cochrane [5]. Priority setting processes have generally involved stakeholders such as clinicians, guideline writers, patients, carers, and other members of the public, who derive a list of key clinical questions through a variety of methods such as questionnaires and face-to-face meetings. Pickard et al. [6]

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The Cochrane Airways Group remit is to provide Cochrane Reviews, which are relevant to today's healthcare decision makers, and therefore, we have a direct interest in the outcome of the prioritization exercise described in the article.

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What is new?

Key findings

- We were able to prioritize 30 of 270 Cochrane Airways Reviews for updating and made a commitment to updating as many of these as possible within 2 years. Nine of these reviews have been updated in the first 18 months.

What this adds to what was known?

- Several approaches to research prioritization have been published. We present a pragmatic approach to prioritization of a Cochrane Review Group (CRG) systematic review portfolio, which was done without additional resources.

What is the implication and what should change now?

- By using a variety of techniques for prioritization, the Cochrane Airways Group was able to gain more control over our scope. Similar approaches may be of use to other CRG or others making decisions about research priorities such as funders and guideline developers.

prioritized comparative effectiveness research topics in COPD using stakeholder involvement including face-to-face discussions with clinicians and a separate meeting with other stakeholders. A similar approach was reported by Li et al. [7] where needs for primary research and systematic reviews were evaluated in primary open-angle glaucoma.

1.1. Our aims

The aim of the study was to develop pragmatic and transparent prioritization techniques to identify 25 to 35 high-priority updates from a total of 270 CAG Reviews and become more selective over which new reviews we publish.

2. Methods

Our approach involved four different strands: (1) understanding patient uncertainties about asthma, (2) piloting a prioritization tool to assess whether individual reviews require updating, (3) surveying the CAG Editorial Board, and (4) horizon scanning for new review titles.

2.1. Understanding patient uncertainties about asthma

The James Lind Alliance established an Asthma Priority Setting Partnership (PSP) in 2004 [8]. We decided to use the 267 treatment uncertainties and the top 10 priority questions identified by the PSP as a starting point for our own prioritization. We grouped all the patient uncertainties under ''indicative domains'' and revisited the top 10 research questions to highlight where new reviews or updates were needed or where we already had a review relevant to the uncertainty (see supporting information).

2.2. Decision tool for prioritizing Cochrane Review updates

In 2011, a prioritization tool was developed by the Cochrane Collaboration and Bazian, to address issues around updating systematic reviews [5,9]. The decision tool comprises a flowchart (Fig. 1) to support decision making, and a statistical program run in STATA that assesses whether the primary outcome of a review is likely to change based on the number of new participants found in new eligible studies. The flowchart guides the user through a series of questions, and if there are new studies, the statistical decision tool can be applied to determine whether conclusions are likely to change.

We piloted the tool on the top reviews ranked by Web site hits and citations that had been identified by the Cochrane Library publisher, Wiley [10]. The information specialist (ES) searched the CAG Specialized Register of trials [11] as needed, and one person screened the titles and abstracts for new studies for inclusion in the reviews. We used the STATA tool on reviews where we had identified new eligible studies.

2.3. Survey of CAG Editorial Board

To obtain a perspective across all Cochrane Airways Reviews, we asked the Editorial Board for input. The Editorial Board comprises clinicians and researchers who have written one or more reviews and who are involved in the selection of new review topics and editing reviews. We invited 14 Editors to select their top 10 reviews from a list of 185 published reviews and score them from 10 to 1, with 10 being most important. We did not ask the Editors to consider all 270 reviews as we knew that approximately 90 had no new trials.

2.4. Prioritization of new review titles by horizon scanning

The information specialist searches multiple databases weekly to identify new trial reports to add to the Specialized Register of trials [11]. New and emerging treatments were discussed at editorial team meetings. If a treatment was an active research area (judged by the volume of references to studies coming through in the literature), we created a possible new review title on Cochrane's information management system, Archie. We used this list of possible new titles to cross-check with unsolicited review proposals to inform our decisions about which new review proposals to accept.

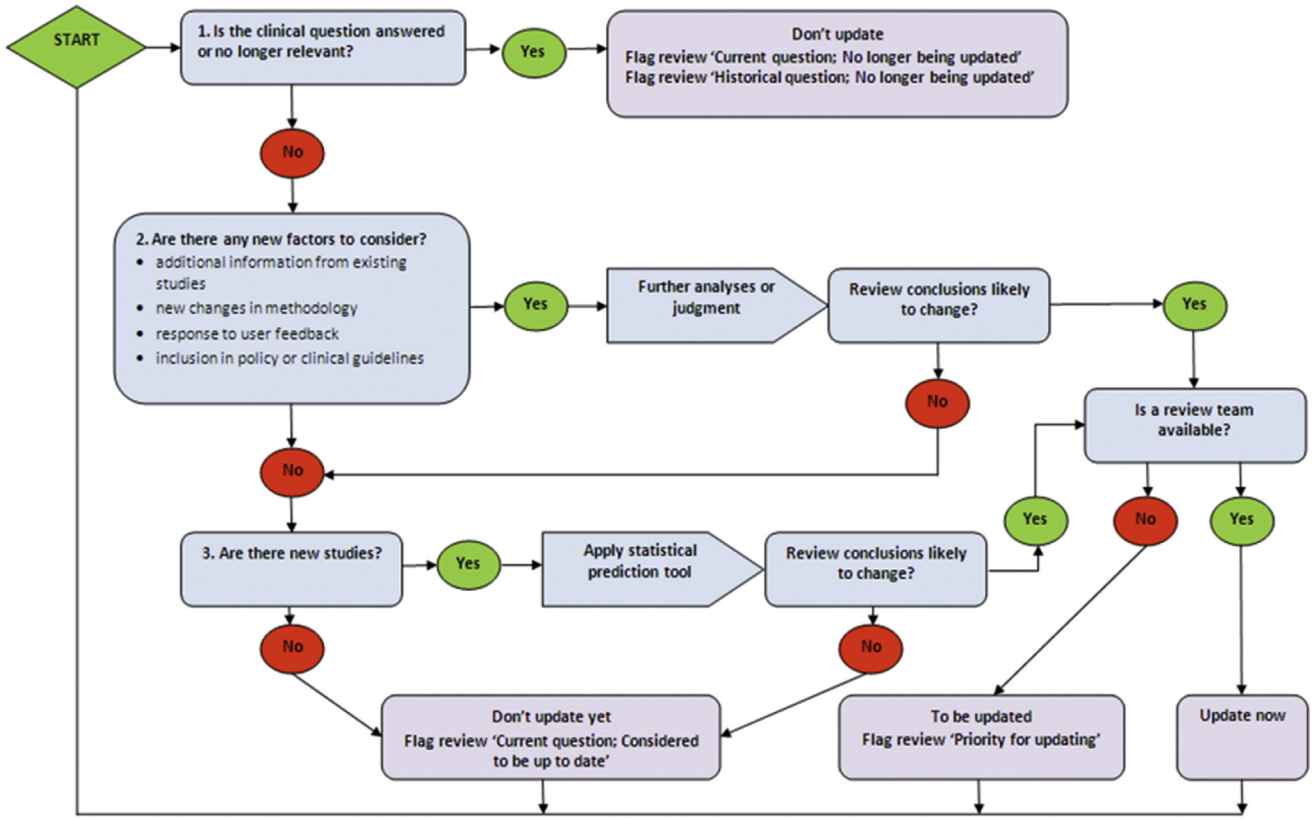

Fig. 1. Prioritization flowchart. Reproduced with permission from David Tovey, Copyright 2011.

We also became more responsive to signals from our environment, for example, through enquiries from prospective author teams, discussions with authors, editors, and referees, and we noticed that a particular topic, vitamin D for asthma, was generating a lot of interest. We decided to put out an open call for review proposals on this topic. We advertised the review title by e-mailing all our authors, editors, and peer referees and promoting the title on our Web site and social media. The editorial team assessed the applications against the following criteria: (1) skills of the author team, (2) appropriateness of methods to answer the clinical question [participants, interventions, control, outcomes (PICO) and subgroup analysis], (3) appropriate timeline for review production, (4) the commitment to update, and (5) the mention of current methodology in the application (eg, recognition of key standards for Cochrane Reviews such as summary of findings tables and risk of bias).

3. Results

3.1. Assessing patient uncertainties

Eight key areas of uncertainty were highlighted including side effects of drugs, alternatives to pharmaceutical interventions (eg, complementary or holistic therapies), asthma management, and educational interventions (Table 1).

Concerns about the effect of steroids on growth emerged as a key issue. Our existing review "beclomethasone for asthma in children: effects on linear growth" [12] was over 10 years out of date and only included one type of inhaled corticosteroid (ICS) although several different ICS are now routinely used in clinical practice. We therefore commissioned a suite of three reviews on the effect of ICS on growth in children with asthma. Two reviews on the effects of ICS on growth [13] and dose–response effects [14] are published, and we have a protocol on the effect of inhaler devices on growth [15]. We also commissioned a new review on self-management interventions to replace a number of existing management reviews. The remaining topics

Table 1. Indicative domains

Indicative domain
1 Side effects from nonspecified asthma medications
2 Side effects from steroids
3 Alternatives to drugs
4 Asthma management
5 Environmental/asthma triggers
6 What is the best device to deliver inhaled treatments?
7 Drugs for asthma exacerbations
8 Drugs for chronic asthma

were either covered by existing reviews or beyond the scope of our group (see supporting information).

3.2. Piloting the decision tool

We planned to apply the decision tool to the reviews that were most highly cited ($N = 12$) or had the most Web site hits ($N = 12$). After removing duplicates ($N = 3$), reviews that had recently been updated ($N = 3$), a review which was indicated previously as needing splitting into smaller reviews and one review that was in the process of being updated, we had 16 reviews to test using the decision tool (Fig. 2).

For two reviews, we judged that the clinical question had already been answered because the conclusions were firm and the treatments were widely accepted in clinical practice. We identified at least one new factor that would require a change in scope in the remaining 14 reviews for example:

- Question answered in adults but more research needed in children/neonates.
- Therapy vs. placebo answered—need more information on head-to-head comparisons.
- Some overlap with another review, therefore considered changing the inclusion criteria.
- The inclusion criteria led to heterogeneity in the study methods and aims.

Because deciding whether the conclusions were likely to change with these new factors constituted a substantive piece of work, we brought all 14 reviews to the next step.

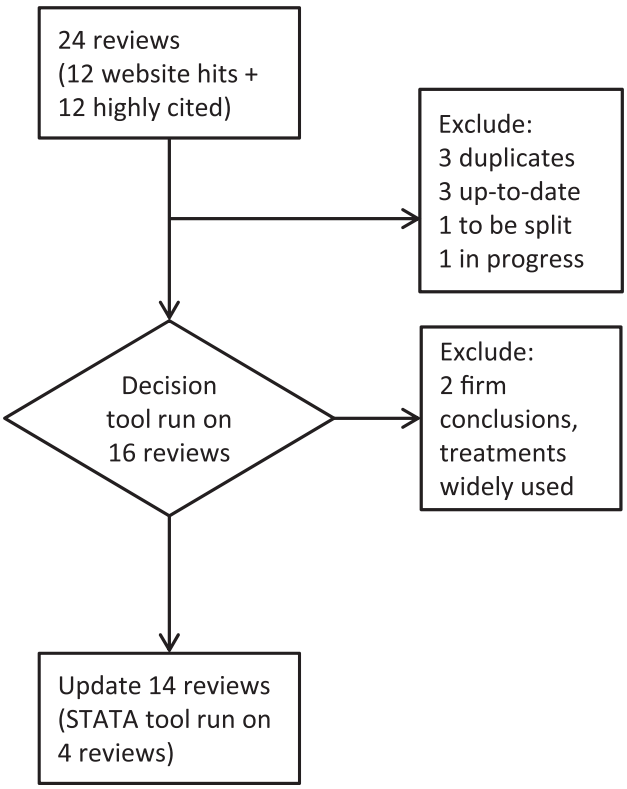

Fig. 2. Flow diagram of reviews.

We were confident that there were new studies for four of these reviews, but we were less confident about the number of new studies for the remaining 10 reviews. We therefore tested these four reviews using the STATA tool. All four reviews were indicated for updating as there were sufficient participants in the trials to change the conclusions of the review according to the algorithm.

Overall, we identified 14 of 21 reviews that needed updating. We estimated that the piece of work took approximately five person-days of time.

3.3. Survey of CAG Editorial Board

Ten of 14 Editors responded to our request to select the 10 most important review updates from our portfolio. Several Editors felt it was too difficult to give the reviews a score, so we decided to adapt our scoring and give a review a point each time an Editor nominated it in their top 10.

Seventy-one reviews were identified by one or more Editors, and we added these to the 24 reviews that were most highly accessed or cited. After removing duplicates, there were 79 reviews. The next step was to reduce these in number to our target of around 24 reviews. To achieve this, we decided to keep reviews that were identified by either two or more Editors, or one Editor and a top hit or citation. We added one review that had been identified through discussion with a guideline team as an important review to update for a forthcoming asthma guideline. From the remaining 45 reviews, 15 were identified as being up-to-date ($n = 6$, having had an update published within the previous 6 months), in the editorial process ($n = 5$), or update in progress ($n = 4$). Thirty were identified as a priority for updating.

3.4. Prioritization of new review titles

From a list of new and emerging treatments compiled over 2012 to 2013 through surveillance of new trial literature, six titles were registered with a review team and a further four were logged for further prioritization.

During 2012 and 2013, we received several expressions of interest in working on a Cochrane Review on vitamin D for asthma. Our open call for proposals resulted in 13 applications, and from these, we were able to successfully appoint a review team. The protocol for this title is now in development. We also registered a separate title on vitamin D with a second review team for the prevention of asthma, eczema, hay fever, and food allergy, which had been mentioned in one of the applications—on which we will collaborate with the Cochrane Ear, Nose and Throat, and Skin Groups.

4. Commentary

In this program of work, we used elements from an existing prioritization process, invited expert opinion, and

used a quantitative decision tool. We have demonstrated that it is possible for CRGs to adopt a pragmatic approach to prioritizing updates and new reviews based on information that is likely to be already available to them.

This project differs from the approaches described in the literature to date because we did not follow a formal methodology. However, we had distinct aims against which we can evaluate the success of this project. We achieved our aims by prioritizing 30 reviews for updating, and we used horizon scanning to prioritize new review titles. We commissioned many of the updates and new reviews by contacting existing review teams and asked them to update their review or pass on the review to a new team for updating. We also suggested revisions to the methodology and PICO question in some instances. Nine reviews have been published, and one is in press.

Grounding our work in patient uncertainties derived from earlier work was a strength of the project. Although this might seem like an advantage which is not readily available to all other Cochrane Groups, we have found it is possible to acquire similar information from charities. Since the completion of our prioritization exercise, Asthma UK has kindly provided us with some information from their patient groups and projects in the area of asthma management, and we are going to use this information in future prioritization work.

Gathering the opinions from our Editorial Board was a valuable exercise as Editors hold a wealth of clinical and research experience and offer perspectives from the United Kingdom, Europe, Australia, and Canada. This exercise highlighted that we had only two pediatricians, only one Editor based on an Emergency Department, and no Editors from low- and middle-income countries. This is an outcome of this project that we did not predict and we are working to redress this imbalance.

Piloting the decision flowchart was an important part of our exercise as it helped us to consider all the different factors that might indicate a need for updating. Piloting the tool using a random selection of review topics rather than the top hits and cites would have been a better test as our test set of reviews had already been identified as highly accessed. However, because such a high proportion of these highly cited reviews was also identified as priority for updating by the decision tool, this pilot suggested that the top hits and cites can be used by all CRGs to prioritize their updates with very little extra work.

The labor intensive part of piloting the decision flowchart was screening the literature searches. In particular, screening the literature searches for reviews of complex interventions, such as education and pulmonary rehabilitation, was a time-consuming task because of the difficulty in applying inclusion criteria and the frequent need to retrieve the full text to make a decision. In contrast, it is relatively straightforward to screen a search for an update of a placebo-controlled drug trial. In cases where more than a few studies of complex interventions appear relevant from the abstract, we suggest that these reviews are assumed to have new relevant data, even if they become ‘‘excluded studies,’’ and are prioritized for updating. However, decisions to update should not be indicated only by investigation of the number of new eligible studies.

An advantage in using the STATA tool is that it returns a clear statistical answer on the probability of whether the conclusions of a review are likely to change if it is updated with new studies. However, because the tool uses only the number of participants in a new study regardless of whether outcome data relevant to the review are presented, false positives may be generated.

Lack of resources has been highlighted as a barrier to prioritization by Bero et al. [16,17] and others; however, we have shown that it is possible to accomplish a fairly extensive program of work without additional resources beyond those available to all Cochrane Groups. Although prioritization takes time, it also gives permission for CRGs to say no to author requests to update reviews, which were not identified as a priority thus freeing resources. We have provided this detailed narrative description to inspire other groups who wish to do more prioritization and intend that this can be used as a jumping off point, rather than a prescriptive method. Most of the work was completed by editorial base staff, and we drew heavily on the expertise and experience of our Editors and editorial team. We were able to use everyday tasks such as the routine screening of literature for our trials register to inform the decisions we make about taking on new review titles, and we took a proactive approach to commissioning a new priority title by advertising it without incurring any costs.

The benefits of prioritizing our work are already becoming apparent. We have achieved greater control over our review portfolio, and the time saved by no longer supporting undesirable updates has given us an opportunity to focus on other projects that are important to our stakeholders, for instance disseminating the results of our reviews and engaging with policy makers and guideline developers. The next steps for us are to extend this work into other areas in our scope. We have already started to prioritize our bronchiectasis reviews using a different method. We have commissioned an overview of Cochrane Reviews [18], and the overview team has taken the approach of mapping out the evidence from reviews and trials in bronchiectasis against a framework devised in the protocol. Frameworks for prioritization of other areas could be informed by relevant clinical guidelines and from evidence mapping projects such as the neurotrauma evidence map [19].

There are a number of other possible approaches to prioritization, which have their own benefits and limitations, and many CRGs already do some element of prioritization, but we hope that this article encourages groups yet to begin to do so and for all groups to share their methods and experiences.

5. Conclusion

We successfully prioritized 30 reviews for updating and selected 12 new reviews to be conducted. We have moved into a major new phase in organizing our output and are more able to focus on the most important systematic reviews to maintain, giving more time for dissemination and other activities. Taking pragmatic steps toward prioritization can furnish a list of priority reviews without excessive drain on the time and resources of a CRG.

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Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.jclinepi.2014.11.002.

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